What is claimed is:

1. A semiconductor device having a photo diode comprising a first conductivity type semiconductor layer and a second conductivity type semiconductor layer formed at a surface layer portion of said first conductivity type semiconductor layer, wherein:

the sensitivity of said photo diode to light of a first wavelength and the sensitivity to light of a second wavelength which is different from said first wavelength are made to become substantially the same by designing a region in which a depletion layer spreads from a junction surface of said first conductivity type semiconductor layer and said second conductivity type semiconductor layer when inverse biases are applied to said first conductivity type semiconductor layer and said second conductivity type semiconductor layer.

2. A semiconductor device as set forth in claim 1, wherein:

the sensitivity of said photo diode to light of a first wavelength and the sensitivity to light of a second wavelength are made to become substantially the same by designing impurity concentrations and said inverse biases of said first conductivity type semiconductor layer and said second conductivity type semiconductor layer and by designing said region in which

a depletion layer spreads.

3. A semiconductor device as set forth in claim 1, wherein said depletion layer is designed to spread in a region including a region 3 to 6 μm in the depth direction from a surface of said second conductivity type semiconductor layer.

4. A semiconductor device as set forth in claim 1, wherein said depletion layer is designed to spread in a region including a region 2 to 7 μm in the depth direction from a surface of said second conductivity type semiconductor layer.

5. A semiconductor device as set forth in claim 1, wherein said first conductivity type semiconductor layer is formed on a first conductivity type semiconductor substrate containing a first conductivity type impurity at a higher concentration than said first conductivity type semiconductor layer.

6. A semiconductor device as set forth in claim 5, wherein a surface concentration of the first conductivity type impurity of said first conductivity type semiconductor substrate is at least $1\times10^{17}/cm^3$.

7. A semiconductor device as set forth in claim 5, wherein a distance between an end face of said depletion layer at the first conductivity type semiconductor substrate side and the surface of said first conductivity

type semiconductor substrate is 3 μm or less.

8. A semiconductor device as set forth in claim 1, wherein

said first wavelength is 780 nm and

said second wavelength is 650 nm.

9. A semiconductor device comprising a first conductivity type semiconductor substrate, a first conductivity type semiconductor layer formed on a first conductivity type semiconductor substrate and containing a first conductivity type impurity at a lower concentration than said first conductivity type semiconductor substrate, and a second conductivity type semiconductor layer formed at a surface layer portion of said first conductivity type semiconductor layer, wherein:

a photo diode is formed by spreading a depletion layer from a junction surface of said first conductivity type semiconductor layer and said second conductivity type semiconductor layer when inverse biases are applied to said first conductivity type semiconductor layer and said second conductivity type semiconductor layer, and

the concentrations of the impurity of said first and second conductivity layers are adjusted so that the depletion layer spreading region is made wherein the

sensitivity of said photo diode to light of a first wavelength and the sensitivity to light of a second wavelength which is different from said first wavelength become substantially the same.